

AMENDMENTS TO THE CLAIMS:

The following is a complete listing of the claims.

- 1.-41. (canceled)
42. (currently amended) An isolated or recombinant nucleic acid sequence encoding a threonine deaminase protein capable of catalyzing the conversion of threonine to α -ketobutyrate, wherein:
- a. the sequence encoding a leucine residue at amino acid position 447 ~~of the wild type protein~~ relative to said position in the protein encoded by SEQ ID NO:1 is replaced with a sequence encoding an alanine, isoleucine, valine, phenylalanine, tryptophan, or methionine residue;
 - b. the sequence encoding a leucine residue at amino acid position 481 ~~of the wild type protein~~ relative to said position in the protein encoded by SEQ ID NO:1 is replaced with a sequence encoding an alanine, isoleucine, proline, phenylalanine, tryptophan, or methionine residue; or
 - c. the sequence encoding leucine residues at amino acid positions 447 and 481 ~~of the wild type protein~~ relative to said positions in the protein encoded by SEQ ID NO:1 are independently replaced with sequences encoding alanine, isoleucine, phenylalanine, tryptophan, or methionine residues.
43. (currently amended) A recombinant vector comprising a nucleic acid sequence encoding a threonine deaminase protein capable of catalyzing the conversion of threonine to α -ketobutyrate, wherein:
- a. the sequence encoding a leucine residue at amino acid position 447 ~~of the wild type protein~~ relative to said position in the protein encoded by SEQ ID NO:1 is replaced with a sequence encoding an alanine, isoleucine, valine, phenylalanine, tryptophan, or methionine residue;
 - b. the sequence encoding a leucine residue at amino acid position 481 ~~of the wild type protein~~ relative to said position in the protein encoded by SEQ ID NO:1 is

- replaced with a sequence encoding an alanine, isoleucine, proline, phenylalanine, tryptophan, or methionine residue; or
- c. the sequence encoding leucine residues at amino acid positions 447 and 481 ~~of the wild type protein~~ relative to said positions in the protein encoded by SEQ ID NO:1 are independently replaced with sequences encoding alanine, isoleucine, phenylalanine, tryptophan, or methionine residues.
44. (currently amended) A recombinant host cell comprising a recombinant nucleic acid sequence encoding a threonine deaminase protein capable of catalyzing the conversion of threonine to α -ketobutyrate, wherein:
- a. the sequence encoding a leucine residue at amino acid position 447 ~~of the wild type protein~~ relative to said position in the protein encoded by SEQ ID NO:1 is replaced with a sequence encoding an alanine, isoleucine, valine, phenylalanine, tryptophan, or methionine residue;
- b. the sequence encoding a leucine residue at amino acid position 481 ~~of the wild type protein~~ relative to said position in the protein encoded by SEQ ID NO:1 is replaced with a sequence encoding an alanine, isoleucine, proline, phenylalanine, tryptophan, or methionine residue; or
- c. the sequence encoding leucine residues at amino acid positions 447 and 481 ~~of the wild type protein~~ relative to said positions in the protein encoded by SEQ ID NO:1 are independently replaced with sequences encoding alanine, isoleucine, phenylalanine, tryptophan, or methionine residues.
45. (currently amended) A method of preparing recombinant host cells useful to convert threonine to α -ketobutyrate, the method comprising:
- a. selecting a host cell;
- b. transforming the selected host cell with a recombinant vector, wherein the recombinant vector comprises a nucleic acid sequence encoding a threonine deaminase protein capable of catalyzing the conversion of threonine to α -ketobutyrate, wherein:

the sequence encoding a leucine residue at amino acid position 447 ~~of the wild type protein~~ relative to said position in the protein encoded by SEQ ID NO:1 is replaced with a sequence encoding an alanine, isoleucine, valine, phenylalanine, tryptophan, or methionine residue; the sequence encoding a leucine residue at amino acid position 481 ~~of the wild type protein~~ relative to said position in the protein encoded by SEQ ID NO:1 is replaced with a sequence encoding an alanine, isoleucine, proline, phenylalanine, tryptophan, or methionine residue; or the sequence encoding leucine residues at amino acid positions 447 and 481 ~~of the wild type protein~~ relative to said positions in the protein encoded by SEQ ID NO:1 are independently replaced with sequences encoding alanine, isoleucine, phenylalanine, tryptophan, or methionine residues; and

c. obtaining recombinant host cells.

46. (currently amended) A transgenic plant, the genome of which comprises a recombinant nucleic acid sequence encoding a threonine deaminase protein capable of catalyzing the conversion of threonine to α -ketobutyrate, wherein:

- a. the encoded leucine residue at amino acid position 447 ~~of the wild type protein~~ relative to said position in the protein encoded by SEQ ID NO:1 is replaced with alanine, isoleucine, valine, phenylalanine, tryptophan, or methionine;
- b. the encoded leucine residue at amino acid position 481 ~~of the wild type protein~~ relative to said position in the protein encoded by SEQ ID NO:1 is replaced with alanine, isoleucine, proline, phenylalanine, tryptophan, or methionine; or
- c. the leucine residue at amino acid positions 447 and 481 ~~of the wild type protein~~ relative to said positions in the protein encoded by SEQ ID NO:1 are independently replaced with alanine, isoleucine, phenylalanine, tryptophan, or methionine.